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consisting of the cytoplasmic domain, the I-domain and the spliced domain, having essentially the same biological activity, which process comprises the steps of

- 1
- a) isolating a polynucleotide comprising a nucleotide sequence coding for an integrin subunit  $\alpha 10$ , or homologues thereof or a fragment having essentially the same biological activity,
  - b) constructing an expression vector comprising the isolated polynucleotide,
  - c) transforming a host cell with said expression vector,
  - d) culturing said transformed host cell in a culture medium under conditions suitable for expression of integrin subunit  $\alpha 10$ , or homologues or I domain or fragment thereof having essentially the same biological activity, in said transformed host cell, and, optionally,
  - e) isolating the integrin subunit  $\alpha 10$ , or homologues or fragments thereof having essentially the same biological activity, from said transformed host cell or said culture medium;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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3. (Amended) A process of providing an integrin subunit  $\alpha 10$ , or homologues or fragment thereof having essentially the same biological activity, whereby said subunit is isolated from a cell in which it is naturally present;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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4. (Twice Amended) An isolated polynucleotide comprising a nucleotide coding for an integrin subunit  $\alpha 10$ , or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or suitable parts thereof;

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wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D4  
5. (Amended) An isolated polynucleotide or oligonucleotide which hybridises to a DNA or RNA coding for an integrin subunit  $\alpha 10$ , or for homologues or fragment thereof having essentially the same biological activity, wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ ;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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6. (Twice Amended) A vector comprising a polynucleotide or oligonucleotide coding for an integrin subunit  $\alpha 10$ , or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide or oligonucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 parts thereof;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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7. (Amended) A vector comprising a polynucleotide or oligonucleotide which hybridises to a DNA or RNA coding for an integrin subunit  $\alpha 10$ , or for homologues or fragment thereof, wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ ;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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9. (Twice Amended) A cell generated by steps a) to d) of the process as defined in claim 2, in which a polynucleotide or oligonucleotide coding for an integrin subunit  $\alpha 10$ , or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide or oligonucleotide comprises the nucleotide

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sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or parts thereof, has been stably integrated in the cell genome;

wherein the fragment is selected from the group consisting of the cytoplasmic domain; the I-domain and the spliced domain.

10. (Twice Amended) Binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising the amino acid sequence of SEQ ID No. 2 or SEQ ID No. 4, or to homologues or fragment thereof;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D8  
11. (Amended) Binding entities according to claim 10, which are chosen from the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

12. (Amended) Binding entities according to claim 10, which are polyclonal or monoclonal antibodies, or fragments thereof.

D9  
13. (Twice Amended) A recombinant or isolated integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit b, in which the subunit  $\alpha 10$  comprises essentially the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, and homologues and a fragment thereof having essentially the same biological activity; wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D10  
15. (Twice Amended) A process of producing a recombinant integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , in which the subunit  $\alpha 10$  comprises essentially the amino acid sequence shown in SEQ ID No. 2 and SEQ ID No. 4, homologues and a fragment thereof having essentially the same biological activity, which process comprises the steps of

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a) isolating one polynucleotide comprising a nucleotide sequence coding for a subunit  $\alpha 10$  of an integrin heterodimer and, optionally, another polynucleotide comprising a nucleotide sequence coding for a subunit  $\beta$  of an integrin heterodimer, or polynucleotides or oligonucleotides coding for homologues or fragment thereof having essentially the same biological activity,

b) constructing an expression vector comprising said isolated polynucleotide coding for said subunit  $\alpha 10$  optionally in combination with an expression vector comprising said isolated nucleotide coding for said subunit  $\beta$ ,

c) transforming a host cell with said expression vector or vectors,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or homologues or fragment thereof having essentially the same biological activity, in said transformed host cell, and, optionally,

e) isolating the integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or homologues or fragment thereof having essentially the same biological activity, or the  $\alpha 10$  subunit thereof from said transformed host cell or said culture medium;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

16. (Amended) A process of providing a integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or homologues or fragment thereof having essentially the same biological activity, whereby said integrin heterodimer is isolated from a cell in which it is naturally present;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

17. (Twice Amended) A cell containing a first vector, said first vector comprising a polynucleotide or oligonucleotide coding for a subunit  $\alpha 10$  of an integrin heterodimer, or for homologues or parts thereof having essentially the same

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D12  
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biological activity, which polynucleotide or oligonucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or parts thereof, and a second vector, said second vector comprising a polynucleotide or oligonucleotide coding for a subunit  $\beta$  of an integrin heterodimer, or for homologues or fragment thereof having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D13  
18. (Amended) Binding entities having the capability of binding specifically to an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragment thereof having essentially the same biological activity, or an subunit  $\alpha 10$  thereof, having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D14  
20. (Twice Amended) Binding entities according to claim 18, which are chosen among the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

23. (Twice Amended) A fragment of the integrin subunit  $\alpha 10$ , wherein the fragment is a peptide comprising the amino acid sequence SEQ ID No. 7.

D15  
24. (Twice Amended) A fragment of the integrin subunit  $\alpha 10$ , wherein the fragment is the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ ID No. 2.

25. (Twice Amended) A fragment of the integrin subunit  $\alpha 10$ , wherein the fragment is the amino acid sequence from about amino acid No. 140 to about amino acid no. 337 of SEQ ID No. 2.

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26. (Twice Amended) A method of producing a fragment of the integrin subunit  $\alpha 10$  wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain, which method comprises a sequential addition of amino acids containing protective groups.

27. (Twice Amended) A polynucleotide or oligonucleotide coding for a fragment selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain of the integrin subunit  $\alpha 10$ .

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28. (Twice Amended) Binding entities having the capability of binding specifically to a fragment of the human integrin subunit  $\alpha 10$  wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D17  
29. (Amended) Binding entities according to claim 28, which are chosen from the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

30. (Amended) Binding entities according to claim 28, which are polyclonal or monoclonal antibodies, or fragments thereof.

D18  
31. (Thrice Amended) A method of using an integrin subunit  $\alpha 10$  *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D19  
33. (Thrice Amended) A method of using an integrin subunit  $\alpha 10$  *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

34. (Thrice Amended) A method of using an integrin subunit  $\alpha 10$  *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of No. of SEQ ID NO: 2.

35. (Thrice Amended) A method of using an integrin subunit  $\alpha 10$  *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 1.

D20  
46. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin

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heterodimer comprising said subunit  $\alpha 10$  and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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48. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

49. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, wherein said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

50. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit or to homologues or



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D21  
fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID NO: 2.

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D22  
52. (Four Times Amended) The method of claim 46, comprising detecting the presence of an integrin subunit  $\alpha 10$  comprising the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4 or of an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or of homologues or fragment thereof having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D23  
54. (Thrice Amended) A method for detecting the presence of a integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ ;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D24  
56. (Twice Amended) A method for detecting the presence of a integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA

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D24  
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encoding an integrin subunit  $\alpha 1$ , whereby said fragment is a peptide selected from the group consisting of peptides of the cytoplasmic domain, the I-domain and the spliced domain.

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D25

57. (Thrice Amended) A method for detecting the presence of a integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment peptide comprising the amino acid sequence SEQ ID NO: 7.

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58. (Thrice Amended) A method for detecting the presence of a integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ. ID NO: 2.

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D26

59. (Twice Amended) A method for detecting the presence of a integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment comprises the amino acid

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D26  
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sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID  
NO: 1.

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D27  
73. (Amended) A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit b, or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$  having essentially the same biological activity, as a target molecule;  
wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D28  
76. (Amended) A vaccine comprising as an active ingredient an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit b, or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$ , or DNA or RNA coding for said integrin subunit  $\alpha 10$ ;  
wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D29  
78. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  *in vitro* comprising binding the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$  or to homologues or fragment thereof having essentially the same biological activity, for promoting adhesion of chondrocytes and/or osteoblasts to surfaces of implants to stimulate osseointegration;  
wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D30  
79. (Twice Amended) A method of detecting the presence of integrin binding entities *in vitro*, comprising interacting an integrin heterodimer comprising a

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subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with a sample, thereby causing said integrin, subunit  $\alpha 10$ , or homologue or fragment thereof, to modulate the binding to its natural ligand or other proteins present in said sample;

D30  
Correct wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D31 80. (Twice Amended) A method of studying consequences of the interaction of a human heterodimer integrin *in vitro*, comprising interacting a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with an integrin binding entity and thereby initiating a cellular reaction;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D32 82. (Twice Amended) A method of using DNA or RNA *in vitro*, comprising encoding an integrin subunit  $\alpha 10$  or homologues or fragment thereof as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D33 84. (Twice Amended) A method of using a human heterodimer integrin *in vitro*, comprising using a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit, or a DNA or RNA encoding an integrin subunit  $\alpha 10$  or homologues or fragments thereof, as a marker or target molecule during angiogenesis;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D34 85. (Amended) A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent of antibody which is capable of stimulating cell surface expression of an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$  having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D35 86. (Thrice Amended) A method of using a collagen binding integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D36 88. (Thrice Amended) A method of using a collagen binding Integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biological activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

89. (Thrice Amended) A method of using a collagen binding integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit

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$\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

D36  
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90. (Thrice Amended) A method of using a collagen binding integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 2.

D37

99. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin;  
wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

D38

101. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragment thereof having essentially the same activity, as markers or target

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molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID No. 7.

102. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

103. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit  $\alpha 10$ , which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID NO: 2.

105. (Four Times Amended) The method of claim 99, further comprising detecting the presence of an integrin subunit  $\alpha 10$  comprising the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or of an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or of homologues or fragment thereof having essentially the same biologically activity;

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D 39  
Cont'd  
wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D 40  
107. (Thrice Amended) A method of detecting the presence of an integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ ; wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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D 41  
110. (Thrice Amended) A method of detecting the presence of an integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment comprising a peptide consisting of the amino acid sequence SEQ ID NO: 7.

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111. (Thrice Amended) A method of detecting the presence of an integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ ID No. 2.



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112. (Thrice Amended) A method of detecting the presence of an integrin subunit  $\alpha 10$ , or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ , whereby said fragment comprises the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 2.

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127. (Thrice Amended) A method of using binding entities having the capability of binding specifically to an integrin subunit  $\alpha 10$  comprising using the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, or an integrin heterodimer comprising said subunit  $\alpha 10$  and a subunit  $\beta$ , or to homologues or fragments thereof having essentially the same biological activity, for promoting adhesion of chondrocytes, and/or osteoblasts to surfaces of implants to stimulate osseointegration;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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128. (Twice Amended) A method of using an integrin heterodimer as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues, comprising using an integrin subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$  having essentially the same biological activity, as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues where adhesion impairs the function of the tissue;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

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129. (Twice Amended) A method of stimulating, inhibiting, or blocking the formation of cartilage or bone, comprising administering to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$  having essentially the same biological activity, as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

130. (Twice Amended) A method of preventing adhesion between tendon/ligaments and the surrounding tissue after infection, inflammation, and after surgical intervention where adhesion impairs the function of the tissue, comprising administering to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit  $\alpha 10$  having essentially the same biological activity, as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

131. (Twice Amended) A method of stimulating extracellular matrix synthesis and repair by activation or blockage of an integrin heterodimer comprising using a subunit  $\alpha 10$  and a subunit  $\beta$  or of the subunit  $\alpha 10$  thereof or of a homologue or fragment of said integrin, or subunit  $\alpha 10$  having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

132. (Twice Amended) A DNA encoding an integrin subunit  $\alpha 10$  or homologues or fragment thereof as a target molecule;

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wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

133. (Twice Amended) The method according to claim 132, whereby a polynucleotide or oligonucleotide hybridises to the DNA or RNA encoding an integrin subunit  $\alpha 10$  or homologues or fragments thereof and whereby said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit  $\alpha 1$ ;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

134. (Twice Amended) A method of using a human heterodimer integrin comprising using a subunit  $\alpha 10$  and a subunit  $\beta$ , or the subunit  $\alpha 10$  thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, or a DNA or RNA encoding an integrin subunit  $\alpha 10$  or homologues or fragments thereof, as a marker or target molecule during angiogenesis;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

135. (Amended) An RNA encoding an integrin subunit  $\alpha 10$  or homologues or fragments thereof as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

136. (Amended) A method of using DNA or RNA encoding an integrin subunit  $\alpha 10$  or homologues or fragment thereof as target molecules comprising:

choosing cells expressing the integrin subunit  $\alpha 10$  or homologues or fragments thereof encoded by the DNA or RNA and assaying for the presence of the DNA or RNA in the cells;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.